

Remarks

Reconsideration of the present application in view of the above amendments and following remarks is respectfully requested.

Status of the Claims

Claims 8-26 are presented. Claims 8-14 and 25-26 were withdrawn as being drawn to a non-elected invention. Claim 15 has been amended for clarity and to provide appropriate antecedent basis for the "excess" of (meth)acrylic acid, as discussed below. Claim 15 has also been amended to incorporate the limitation of claim 17, now cancelled, into a), as well as the preferred molar ratio of about 2:1 polyol:dicarboxylic acid. Support is found throughout the specification as originally filed, particularly on page 3, lines 6-9 and 17-25, as well as in Example 1. Claim 17 is cancelled without prejudice. No new claims are added.

No new matter has been introduced.

Summary of the Invention as Claimed

As presently amended the claimed invention is drawn to a flatting composition comprising two components, (A) a coating component comprising a mixture of **epoxy** (meth)acrylic compounds and (B) a dimerdiol (meth)acrylate component. Component (A) contains 1-35% of epoxy(meth)acrylates obtained by the process carried out **consecutively** of a) esterifying one or more hydroxyl compounds comprising the reaction products of polyols with α,ω -dicarboxylic acids **in a 2:1 molar ratio**, said esterification using acrylic acid and/or methacrylic acid **in an amount sufficient to esterify substantially all free hydroxyl groups**, b) optionally adding more (meth)acrylic acid, wherein an **excess** of (meth)acrylic acid is present after steps a) and b), and c) reacting the excess (meth)acrylic acid with one or more epoxides in the presence of the esterification product a) (claims 15-16 and 18-24).

Rejections under 35 U.S.C. § 112, second paragraph

Previously pending claims 15-24 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite with regard to the term “obtainable” in claim 15. In response, the claim has been amended to recite “obtained” as suggested by the Examiner. Claims 15-24 as previously presented were also rejected for having no antecedent basis for the “excess” (meth)acrylic acid in claim 15. In response, claim 15 has been amended to recite the presence of such an “excess”.

In view of the above claim amendments, the Examiner is respectfully requested to withdraw the indefiniteness rejections.

Rejections under 35 U.S.C. § 103(a)

Previously pending claims 15-24 were rejected under 35 U.S.C. § 103(a) as being obvious over Beck et al. (US 5,096,938, “Beck”) in view of Kigawa et al, (US 5,798,434, “Kigawa”) and Schornick et al. (EP 126341, “Schornick”). Applicants respectfully traverse the rejection.

Beck discloses radiation-curable acrylates obtained by **simultaneous** reaction of A) 1 equivalent of oxyalkylated C2-C10 dihydric to hexahydric alcohol with B) 0.05-1 equivalent of C3-C36 dibasic to tetrabasic carboxylic acid or anhydride, and C) 0.1 to 1.5 equivalents of acrylic and/or methacrylic acid, followed by reacting the excess carboxyl groups with an equivalent of epoxide compound. It is not clear that 1.5 equivalents of (meth)acrylic acid would be sufficient to esterify all free hydroxyl groups.

Beck’s composition is obtained by **simultaneously reacting** three components, a polyhydric C2-C10 alcohol, a polybasic C3-C36 carboxylic acid or anhydride, and up to 1.5 equivalents of (meth)acrylic acid. Even though applicants do not necessarily agree with the Examiner’s characterizations of Beck, applicants aver that a **simultaneous** condensation of the three stated components in the stated ratios would provide a substantially different product

from that obtained by applicant's **sequential** process of first separately esterifying a polyol compound with a dicarboxylic acid, followed by a second and distinct esterification with (meth)acrylic acid.

This is further supported by the different stoichiometry allowed by Beck versus the preferred stoichiometry of applicants as presently recited in reaction step a). The highest possible stoichiometry allowed by Beck for his oxyalkylated polyol and polybasic acid is **1:1**. Using the example quoted by the Examiner (Office Action, page 3, number 3), this would mean a 1:1 ratio of oxyethylated trimethylolpropane to adipic acid. In contrast, applicants' claim 15 as presently amended recites a **2:1** ratio of polyol:dicarboxylic acid as reflected in the preferred reaction product of trimethylolpropane-3EO/adipic acid in a 2:1 ratio (page 3, lines 6-9; Example 1). With 3 reactive hydroxy groups in the polyol and 2 reactive carboxylic acid groups in the diacid, this latter stoichiometry provides a 6:2 ratio of reactive functionality. Such a ratio is much more likely to produce lower molecular weight products (with correspondingly lower viscosity and improved pourability, page 2, lines 7-9) than the 3:2 ratio of reactive functionality allowed by Beck, which would promote higher oligomer formation.

Thus, Beck actually teaches away from applicants' claims as presently amended, and applicants' composition is distinguished over the teaching of Beck.

As noted by the Examiner, Beck does not teach or suggest **dimerdiol (meth)acrylates**. Nor does Beck disclose **flatting agents**, as claimed by applicants.

In order to cure these deficiencies, the Examiner joined Kigawa and Schornick.

Kigawa discloses a monomer mixture of dimerdiol and trimertriol esters of alpha, beta-unsaturated carboxylic acids, which mixture is useful for the preparation of polymers for plastic lenses.

Schornick discloses a process for preparing (meth)acrylic acid esters of polyesters or polyethers containing at least 2 free OH groups per molecule, in the presence of an acidic catalyst and one or more hydrocarbons forming an azeotropic mixture with water. The (meth)acrylic acid is used in 100-150 mol%. The esters are useful as reactive diluents in photocurable compositions.

Neither Kigawa nor Schornick disclose **flatting agents** as claimed by applicants. Nor do Kigawa and Schornick, taken either separately or together, cure the deficiency of Beck as being a substantially different composition based on Beck's 1:1 versus applicants' 2:1 polyol:dicarboxylic acid reaction stoichiometry. Therefore the combination of Beck, Kigawa and Schornick cannot stand as the means of an obviousness rejection over the claims of applicants.

Previously pending claims 15-24 were rejected under 35 U.S.C. § 103(a) as being obvious over Mochizuki et al. (Japanese Patent No. 10-218946, English translation; "Mochizuki") in view of Beck and Schornick. Applicants respectfully traverse the rejection.

Mochizuki discloses a composition which forms a heat- or active energy-curable coating film comprising an alkoxyated dimerdiol di(meth)acrylate, an unalkoxyated dimerdiol di(meth)acrylate, and further radical polymerizable monomers. It is noted that the diol di(meth)acrylate (A) cited by the Examiner (Office Action, page 5, number 8) is actually an alkoxyated **dimerdiol** di(meth)acrylate, since the group Z is a dimerdiol residue. Mochizuki does not disclose **flatting agents**.

As acknowledged by the Examiner, Mochizuki does not disclose the required **epoxy** (meth)acrylate component. Therefore the Examiner joined Beck and Schornick.

Beck and Schornick are discussed above. As demonstrated above, Beck's simultaneous reaction of at most 1:1 stoichiometry provides a **different reaction product** versus the sequential reaction using a 2:1 stoichiometry

claimed by applicants. Schornick simply discloses a process for preparing (meth)acrylic acid esters of polyesters or polyethers containing at least 2 free OH groups per molecule. Neither Kigawa nor Schornick disclose **flatting agents** as claimed by applicants. Thus the addition of Beck and Schornick is insufficient to cure the deficiencies of Mochizuki.

Further, since none of the cited art discloses flatting agents, applicants' compositions are distinguished over the cited references.

Conclusion

In summary, in view of the above claim amendments and remarks, applicants believe that all of the pending claims as amended are in condition for allowance. The Examiner is respectfully requested to reconsider, withdraw the rejections and allow the claims.

If any additional fees are required in support of this application, authorization is granted to charge our Deposit Account No. 50-1943.

Respectfully submitted,

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